Fishery Management Report No. 99-2

Area Management Report for the Recreational Fisheries in Resurrection Bay, 1997

by

Barry Stratton

August 1999

Alaska Department of Fish and Game **Division of Sport Fish**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used in Division of Sport Fish Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications without definition. All others must be defined in the text at first mention, as well as in the titles or footnotes of tables and in figures or figure captions.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
metric ton	mt
milliliter	ml
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
ounce	oz
pound	lb
quart	qt
yard	yd

Spell out acre and ton.

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
hour (spell out for 24-hour clock)	h
minute	min
second	s

Spell out year, month, and week.

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

All commonly accepted abbreviations.	e.g., Mr., Mrs., a.m., p.m., etc.
All commonly accepted professional titles.	e.g., Dr., Ph.D., R.N., etc.
and	&
at	@
Compass directions:	
east	E
north	N
south	S
west	W
Copyright	©
Corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
et alii (and other people)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.,
id est (that is)	i.e.,
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
number (before a number)	# (e.g., #10)
pounds (after a number)	# (e.g., 10#)
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S. state and District of Columbia abbreviations	use two-letter abbreviations (e.g., AK, DC)

Mathematics, statistics, fisheries

alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	F, t, χ^2, etc.
confidence interval	C.I.
correlation coefficient	R (multiple)
correlation coefficient	r (simple)
covariance	cov
degree (angular or temperature)	°
degrees of freedom	df
divided by	÷ or / (in equations)
equals	=
expected value	E
fork length	FL
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
mideye-to-fork	MEF
minute (angular)	'
multiplied by	x
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
standard length	SL
total length	TL
variance	Var

FISHERY MANAGEMENT REPORT NO. 99-2

AREA MANAGEMENT REPORT FOR THE RECREATIONAL FISHERIES IN RESURRECTION BAY, 1997

by

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The Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Distribution is to state and local publication distribution centers, libraries and individuals and, on request, to other libraries, agencies, and individuals. This publication has undergone regional peer review.

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MANAGEMENT AREA

The Resurrection Bay sport fish management area consists of all fresh and salt waters between Gore Point and Cape Puget. This management area is further divided into two pieces: Resurrection Bay proper (all waters north of a line between Cape Resurrection and Aialik Cape) (Figure 1) and all waters outside Resurrection Bay from Gore Point to Cape Puget. The city of Seward is the only community in the management area. Of Alaska's 607,800 residents (September 1996 Bureau of Census figures), less than 1% reside in Seward. Tourism, including a growing sport fish charter industry, is vital to the economy of Seward. Access to area sport fisheries is by road, rail, air, and boat. Except for road-accessible streams, lakes, and Seward beaches, most sport fisheries in the Resurrection Bay Management Area are relatively remote and require a boat or plane to access. Principal land managers include private individuals, the City of Seward, U.S. National Park Service, U.S. Forest Service, native corporations, and the State of Alaska.

Groundfish (halibut, rockfish, lingcod, shark) research and management is directed by a Fishery Biologist III, Scott Meyer, stationed in Homer, and a Fishery Biologist II, Mike Bethe, stationed in Anchorage. Groundfish issues are managed on a larger scale covering the Gulf of Alaska west of Cape Suckling to the Aleutian Islands. Groundfish issues will not be covered in detail in this report and the reader is referred to the Area Management Report for North Gulf of Alaska Recreational Groundfish Fisheries, 1997 (Vincent-Lang 1998).

In September 1995, the Central Gulf Management Area was split into two separate areas: Prince William Sound and Resurrection Bay. Resurrection Bay salmon and Dolly Varden management and research functions are now directed by a Fishery Biologist III, Barry Stratton, stationed in Anchorage. This report will address saltwater catch and harvest data from the Resurrection Bay proper portion of the management area through 1997.

Codified regulations for Resurrection Bay area saltwater sport fisheries are found in the Cook Inlet-Resurrection Bay Saltwater Area section under Chapter 58, Title 5 of the Alaska Administrative Code (AAC). Codified regulations for Resurrection Bay area freshwater sport fisheries are found in the Kenai Peninsula Area section under Chapter 56 of the AAC. For the purposes of effort, catch, and harvest reporting, the Statewide Harvest Survey (SWHS) by Mills (1979-1994) and Howe et al. (1995-1998) is used. Resurrection Bay area fisheries are summarized under area P in these reports.

FISHERIES RESOURCES

Most area sport fisheries occur in salt water and target five species of Pacific salmon (coho or silver *Oncorhynchus kisutch*, chinook or king *O. tshawytscha*, pink or humpy *O. gorbuscha*, chum or dog *O. keta*, and sockeye or red *O. nerka*), and Dolly Varden *Salvelinus malma*. The Resurrection Bay area is home to one of the largest marine coho salmon fisheries in the Pacific Northwest. This popular fishery is highlighted during the August Seward Silver Salmon Derby sponsored by the Seward Chamber of Commerce. Coho salmon are a mix of hatchery and naturally produced fish, chinook and sockeye salmon are a result of hatchery production, pink and chum salmon and Dolly Varden are wild fish. Resurrection Bay is a popular jumping off point for sport fishing boats targeting groundfish species such as halibut *Hippoglossus stenolepis*, rockfish *Sebastes* and *Sebastolobus*, and lingcod *Ophiodon elongatus*. There is also a

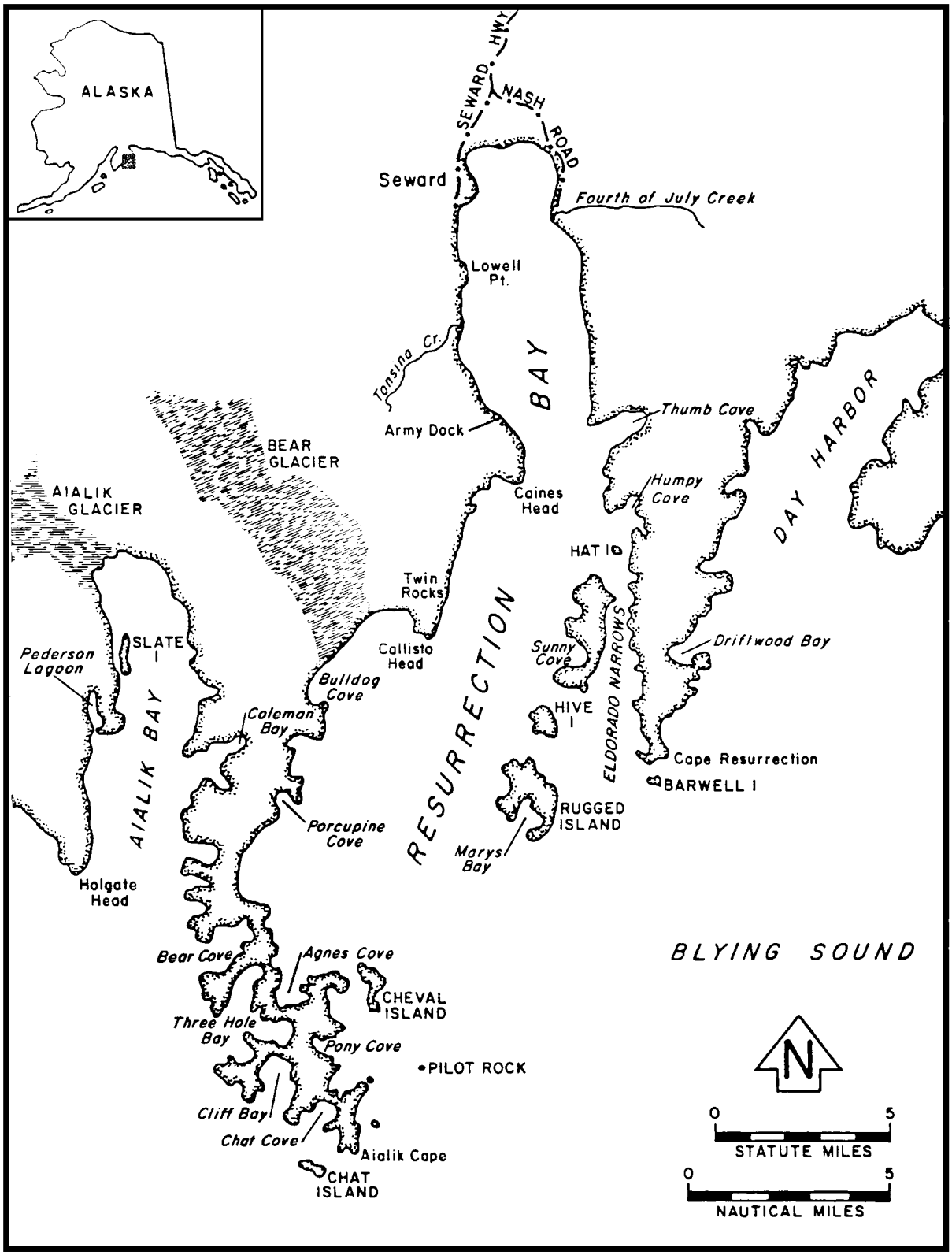

Figure 1.-Map of Resurrection Bay.

small salmon shark *Lamna ditropis* fishery developing. All freshwater drainages in Resurrection Bay are closed to salmon fishing but open to Dolly Varden, rainbow trout, and Arctic grayling sport fishing.

ALASKA BOARD OF FISHERIES ACTIVITIES

The Alaska Board of Fisheries (BOF) is responsible for promulgating regulations in state waters. Public input concerning regulation changes and allocation issues is provided through various means including direct testimony to the BOF and participation in local fish and game advisory committees. These advisory committees have been established throughout Alaska to assist the Boards of Fisheries and Game in assessing fisheries and wildlife issues and proposed regulation changes. Proposals must be submitted between the time the board issues a call for proposals, usually in December or January, and the deadline set by that call for proposals, usually in early April. Most advisory committees meet at least once each year, usually in the fall prior to BOF meetings. Staff from the Division of Sport Fish and other divisions of the Alaska Department of Fish and Game (ADF&G) often attend committee meetings. Advisory committee meetings allow for direct public interaction with department staff involved with local resource issues. The Seward Advisory Committee represents Seward and Moose Pass.

Under its current schedule, the BOF reviews regulations for each area on a 3-year cycle. Proposals for the Resurrection Bay-Cook Inlet Regulatory Area were last considered in 1995/1996. The BOF will next discuss Resurrection Bay issues during the 1998/1999 cycle, currently scheduled for November 13-18, 1998 in Homer.

RECREATIONAL ANGLER EFFORT

Recreational angler effort[1] in Resurrection Bay was relatively stable at an average of 47,000 angler-days from 1977 through 1989 (Table 1). Angler effort increased annually from 69,000 angler-days in 1990 to over 109,000 angler-days in 1997. The 1997 level of sport fishing effort represents 4% of the statewide and 6% of the Southcentral sport angling effort, respectively (Table 1, Figure 2).

Beginning in 1986, the SWHS began estimating angler activity in Resurrection Bay by charter boat, private boat, and shore anglers (Table 2, Figure 3). Fishing from charter boats averages about 28% of total effort, private boats account for 46%, and shore fishing represents 26%. Participation in each of these fisheries has nearly doubled since 1986.

STOCKING PROGRAM INVENTORY

Stocking of hatchery-raised coho, chinook, and sockeye salmon has increased and diversified opportunities for Resurrection Bay saltwater anglers. These stocking activities consist of two types of programs: those directed specifically toward enhancing the sport fisheries, and stocking programs that are intended to increase the harvest potential of the commercial fisheries but incidentally enhance the availability of fish for the sport angler. All of the salmon releases contribute to the common property fisheries and are thus available to any fishery regardless of the target group.

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[1] The Statewide Harvest Survey (SWHS) by Mills (1979-1994) and Howe et al. (1995-1998) serves as the basic reference for effort, catch, and harvest for Resurrection Bay salmon and Dolly Varden fisheries. It is not possible, because of the nature of the harvest survey, to determine the amount of effort expended on a species-specific basis.

Table 1.-Number of angler-days expended in Resurrection Bay compared to Southcentral and Statewide, 1977-1997.

	Statewide	Southcentral	Resurrection Bay		
Year	Effort	Effort	Effort [a]	% of Statewide	% of S.Central
1977			41,797		
1978			53,355		
1979			43,576		
1980			49,623		
1981			56,410		
1982			49,167		
1983	1,732,528	1,212,916	40,144	2%	3%
1984	1,866,837	1,341,658	44,669	3%	3%
1985	1,943,069	1,406,419	47,472	3%	4%
1986	2,071,412	1,518,712	51,375	3%	4%
1987	2,152,886	1,556,050	42,143	2%	3%
1988	2,311,291	1,679,939	50,251	2%	3%
1989	2,264,079	1,583,547	47,386	2%	3%
1990	2,453,284	1,745,110	69,485	3%	4%
1991	2,456,328	1,782,055	71,332	3%	4%
1992	2,540,374	1,889,730	80,814	3%	4%
1993	2,559,408	1,867,233	85,559	4%	5%
1994	2,719,911	1,966,985	85,742	3%	4%
1995	2,787,670	1,985,539	94,265	3%	5%
1996	2,733,008	1,948,892	108,155	4%	6%
1997	2,654,454	1,803,564	109,462	4%	6%

Source: Mills 1979-1994, Howe et al. 1995-1998.

[a] Reported effort does not include effort outside of Resurrection Bay between Gore Point and Cape Puget.

Those programs directed toward enhancing sport fisheries include the stocking of coho and chinook salmon smolts by state-operated hatcheries (Fort Richardson and Elmendorf) and the release of coho salmon raised by Cook Inlet Aquaculture Association (CIAA, a private nonprofit corporation). CIAA releases sockeye salmon into Resurrection Bay fresh waters primarily for commercial activities. In 1998, 360,000 sockeye salmon fry and over 2,000,000 sockeye salmon smolt were released to support commercial fishing activities. To benefit sport anglers, in 1998 about 409,000 coho salmon fry were released into Bear Lake. Over 317,000 coho smolt and over 307,000 chinook salmon smolt were also stocked in Seward-area waters (Table 3).

RESURRECTION BAY MANAGEMENT PLANS

The Board of Fisheries has established two management plans for Resurrection Bay salmon. These plans provide for the sustained yield of area fisheries, as well as establishing allocations and management guidelines for department managers. Management plans and policies established for Resurrection Bay include:

1. Bear Lake Management Plan 5 AAC 21.375. This management plan establishes guidelines for the enhancement of coho and sockeye salmon in Bear Lake near Seward. In essence, the

Table 2.-Components of Resurrection Bay saltwater sport fish effort, 1977-1997.

	Saltwater	Charter Boat		Private Boat		Shore	
Year	Effort	Effort	Percent	Effort	Percent	Effort	Percent
1977	41,797						
1978	53,355						
1979	43,576						
1980	49,623						
1981	56,410						
1982	49,167						
1983	40,144						
1984	44,669						
1985	47,472						
1986	51,375	13,180	26%	24,923	49%	13,272	26%
1987	42,143	12,423	29%	18,364	44%	11,356	27%
1988	50,251	10,587	21%	23,520	47%	16,144	32%
1989	47,386	10,628	22%	21,207	45%	15,551	33%
1990	69,485	17,810	26%	36,556	53%	15,119	22%
1991	71,332	20,872	29%	32,291	45%	18,169	25%
1992	80,814	21,342	26%	41,206	51%	18,266	23%
1993	85,559	22,251	26%	41,442	48%	21,866	26%
1994	85,742	26,664	31%	38,807	45%	20,271	24%
1995	94,265	29,805	32%	39,160	42%	25,300	27%
1996	108,155	31,704	29%	47,328	44%	29,123	27%
1997	109,462	30,370	28%	50,253	46%	28,839	26%
1986-1997 Average	74,664	20,636	27%	34,588	46%	19,440	26%

Source: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported effort does not include effort outside of Resurrection Bay between Gore Point and Cape Puget.

plan provides for the enhancement of sockeye salmon in Bear Lake intended for commercial use in Resurrection Bay, provided the enhancement does not negatively impact coho salmon smolt production from Bear Lake.

2. Resurrection Bay Salmon Management Plan 5 AAC 21.376. This management plan provides allocation and management guidelines for Resurrection Bay salmon fisheries. The plan stipulates that coho and chinook salmon fisheries of Resurrection Bay be managed exclusively for recreational uses, and provides for a commercial fishery for other salmon species only if the prosecution of these fisheries does not interfere with the recreational fishery in Resurrection Bay.

These management plans are presented in Appendix A.

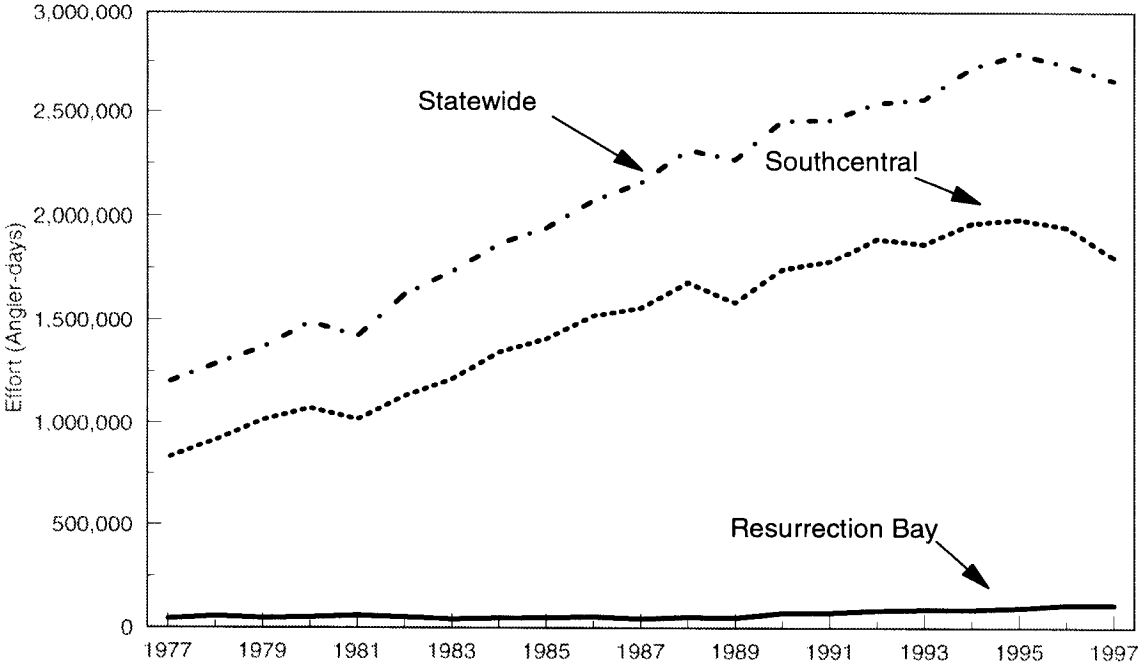

Figure 2.-Number of angler-days expended in Resurrection Bay compared to Southcentral and Statewide, 1977-1997.

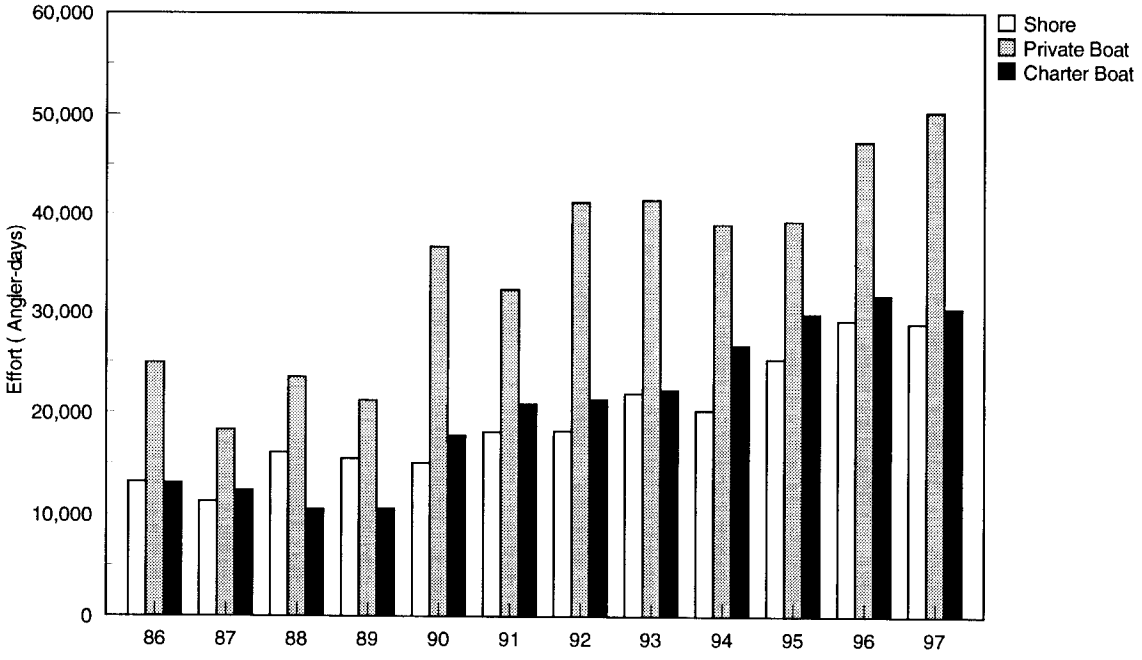

Figure 3.-Components of Resurrection Bay saltwater sport fishing effort, 1986-1997.

Table 3.-Hatchery releases in Resurrection Bay from 1966-1998, and planned releases for 1999.

Stocking location	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Coho fry													
Bear Lake													
Bear Creek													
Coho fingerling													
Bear Creek													
Bear Lake	360,100	246,400					450,800	453,300	450,800	449,900	224,600	10,800	225,820
Box Canyon Creek													
First Lake										1,000			
Sink Hole												11,500	
Seward Lagoon													
Coho smolt													
Bear Creek				47,900	6,400	50,983	155,500				35,600	35,102	28,574
Bear Lake													
Box Canyon Creek					3,200								
Grouse Lake											35,200	35,003	53,455
Lowell Creek													
Seward Lagoon			42,400	27,100	38,600	10,900	66,500	30,200	100,000	100,700	100,600	100,456	148,999
Chinook smolt													
Box Canyon Creek											25,100	50,036	150,488
Lowell Creek													
Seward Lagoon													
Spring Creek													
Thumb Cove													
Chum fingerling													
Jap Creek													
Spring Creek													
Sockeye fry													
Bear Lake													
Sockeye fingerling													
Bear Lake													
Sockeye smolt													
Bear Lake													
Grouse Lake													

-continued-

Table 3.-Page 2 of 3.

Stocking location	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Coho fry													
Bear Lake												333,211	
Bear Creek													
Coho fingerling													
Bear Creek													390,060
Bear Lake	225,460	150,011	246,545	227,800	198,801	220,000	300,446	445,693	223,300	347,155			
Box Canyon Creek									257,461				
First Lake													
Sink Hole													
Seward Lagoon								122,908					
Coho smolt													
Bear Creek	40,503												
Bear Lake												583,700	
Box Canyon Creek								53,607					
Grouse Lake	44,010	50,286	54,593	13,238		53,100	56,134						
Lowell Creek									57,232	63,806	66,606	63,733	89,892
Seward Lagoon	98,566	100,757	109,958	53,970	82,506	67,772	50,256	88,704	65,514	118,741	272,346	145,619	119,057
Chinook smolt													
Box Canyon Creek	257,540				54,521								
Lowell Creek						39,206	132,708	100,900	95,963	95,673	122,800	216,140	93,200
Seward Lagoon							53,587			109,020	109,464	112,831	373,165
Spring Creek											75,063		
Thumb Cove						71,427							
Chum fingerling													
Jap Creek							282,620						
Spring Creek							173,187						
Sockeye fry													
Bear Lake												20,000	1,530,000
Sockeye fingerling													
Bear Lake													
Sockeye smolt													
Bear Lake												2,399,000	74,900
Grouse Lake													

-continued-

Table 3.-Page 3 of 3.

Stocking location	1992	1993	1994	1995	1996	1997	1998	1999-proposed
Coho fry								
Bear Lake		450,000	320,000	509,000	350,000	448,700	409,000	
Bear Creek		170,000						
Coho fingerling								
Bear Creek								
Bear Lake								
Box Canyon Creek								
First Lake								
Sink Hole								
Seward Lagoon								
Coho smolt								
Bear Creek						153,000	177,000	
Bear Lake	51,733			7,400	75,000			
Box Canyon Creek								
Grouse Lake								
Lowell Creek	59,492	64,361	38,000	50,698	69,000	61,687	65,687	60,000
Seward Lagoon	154,219	159,091	201,577	133,700	182,000	144,112	74,365	120,000
Chinook smolt								
Box Canyon Creek								
Lowell Creek	108,390	104,870	104,477	95,256	115,000	117,208	101,992	105,000
Seward Lagoon	261,803	184,742	165,596	220,146	300,000	203,932	205,133	210,000
Spring Creek								
Thumb Cove								
Chum fingerling								
Jap Creek								
Spring Creek								
Sockeye fry								
Bear Lake	1,795,529	44,400	170,000	330,000	780,638	788,000	360,000	
Sockeye fingerling								
Bear Lake		1,765,861						
Sockeye smolt								
Bear Lake	565,489						506,703	
Grouse Lake			570,000	993,000	217,605	2,428,000	1,573,458	

Source: Marianne McNair, Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau, personal communication.

SECTION II: FISHERIES OVERVIEW

Major Resurrection Bay sport fisheries occur in salt water. These include an extremely popular coho salmon fishery, as well as chinook, pink, sockeye, and chum salmon and Dolly Varden fisheries. Groundfish fisheries targeting halibut, rockfish, and lingcod are also popular. In 1997, over 109,000 angler-days were expended in Resurrection Bay marine sport fisheries (Table 4). Coho salmon (almost 90,000) and groundfish (about 51,000) supported the bulk of the harvest.

The following discussion of each fishery includes a brief historical overview, discussions about recent fishery performance, management objectives, recent BOF actions, current issues, and current or recommended management and research activities.

RESURRECTION BAY FISHERIES

Resurrection Bay Coho Salmon Fishery

Resurrection Bay supports one of the largest marine coho salmon sport fisheries in the Pacific Northwest. While most coho salmon were harvested by anglers in private boats from 1986-1997 (57%; Table 5, Figure 4) a shorebased fishery on beaches in and near Seward accounts for about 21% of the total coho salmon harvest. A growing charter boat fleet transports anglers who harvest the remaining 22%. Since the inception of the SWHS, the marine harvest of coho salmon has increased from 14,528 in 1977 to 89,851 in 1997 (Table 5, Figure 5). The 9-day Seward Silver Salmon Derby, which has been held each August since 1956, highlights this fishery. The Board of Fisheries recognized the importance of the Resurrection Bay coho salmon sport fishery, and in 1966 developed the Resurrection Bay Salmon Management Plan (5 AAC 21.376), which gave the sport fishery exclusive use of the bay's coho salmon. In 1976, the BOF modified the plan to stipulate that the commercial fishery for pink and chum salmon be managed so that it does not interfere with the recreational coho and chinook salmon fishery.

An ongoing enhancement program was initiated in 1964 in Bear Lake, which flows into Resurrection Bay, to supplement wild-stock production of coho salmon. The enhancement program included stocking hatchery-reared coho fingerlings and eradicating major competitors such as threespine stickleback *Gasterosteus aculeatus*. Initial results of the program resulted in increased smolt production (Vincent-Lang 1987). However, the lake gradually became re-infested with stickleback and the lake was again rehabilitated in 1971. Subsequently, survival of stocked fingerlings to smolt in some years has exceeded 50%. This, coupled with correspondingly high adult survival rates, has increased harvests in the recreational fishery. The Board of Fisheries recognized the importance of this enhancement program's contribution to the sport fishery and, in 1971, adopted the Bear Lake Management Plan (5 AAC 21.375). This plan stated that Bear Lake be managed primarily for the production of coho salmon and, in accordance with this objective, placed restrictions on the number of sockeye salmon that could be passed into Bear Lake.

In 1988, the Board revised the Bear Lake Management Plan. The revised plan allowed for lifting the restrictions placed on the number of sockeye salmon which could be passed into the lake and allowed for the enhancement of sockeye salmon in Bear Lake. The purpose of this change was to allow for the development of a commercial sockeye salmon fishery in Resurrection Bay. Bear Lake was considered to be the only viable location for such enhancement in the Resurrection Bay area. In making this change, however, the Board recognized the importance of Bear Lake in producing coho salmon for the recreational fishery and stipulated that: (1) any enhancement of sockeye salmon must not cause a net loss of coho salmon smolt production from Bear Lake, and

Table 4.-Effort expended sport fishing and harvest by species in Resurrection Bay, 1977-1997.

Year	Saltwater Effort	Salmon					Dolly Varden	Groundfish [a]	Other [b]
		Chinook	Coho	Pink	Sockeye	Chum			
1977	41,797	515	14,528	1,595	6	63	1,720	14,457	26,034
1978	53,355	501	16,731	6,610	0	39	1,248	20,080	47,173
1979	43,576	156	14,315	2,100	0	100	973	24,690	15,562
1980	49,623	198	19,665	12,614	0	276	878	30,884	32,496
1981	56,410	162	14,721	7,776	0	194	5,335	22,853	20,736
1982	49,167	345	18,518	9,328	0	458	1,562	25,687	21,830
1983	40,144	199	11,277	4,909	0	923	5,811	20,215	15,421
1984	44,669	24	9,727	11,510	1,305	2,569	1,771	26,087	12,773
1985	47,472	187	11,227	5,262	1,335	634	191	22,554	4,382
1986	51,375	207	14,418	11,008	337	1,958	1,071	47,222	11,637
1987	42,143	633	24,220	3,368	815	1,974	815	18,853	1,694
1988	50,251	2,056	17,626	2,001	418	3,947	728	46,327	2,754
1989	47,386	976	19,184	4,856	624	1,696	993	41,186	17,806
1990	69,485	1,004	29,761	6,193	418	427	228	27,910	9,480
1991	71,332	1,547	30,964	4,714	983	757	524	38,352	2,299
1992	80,814	2,925	27,904	4,277	1,135	1,321	376	53,453	6,728
1993	85,559	5,121	47,572	4,172	1,865	680	774	50,537	1,644
1994	85,742	2,078	38,465	5,573	1,415	688	283	56,910	1,744
1995	94,265	3,868	39,741	4,732	1,294	396	609	38,923	2,356
1996	108,155	3,433	67,321	4,607	947	1,387	370	43,541	1,180
1997	109,462	5,761	89,851	1,654	2,081	644	275	51,121	2,946
77-86 average	47,759	249	14,513	7,271	298	721	2,056	25,473	20,804
87-96 average	73,513	2,364	34,276	4,449	991	1,327	570	41,599	4,769

From: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported effort and harvest does not include effort or harvest outside of Resurrection Bay between Gore Point and Cape Puget.

[a] Includes halibut and rockfish, and from 1991-1997 also includes lingcod.

[b] Other includes smelt, herring, sablefish, cod, greenling, sculpin, shark, and from 1987-1990 also includes lingcod.

Table 5.-Resurrection Bay saltwater sport catch (1990-1997) and harvest (1977-1997) of coho salmon.

	Boat									
	Charter		Private		Total		Shore		Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1977										14,528
1978										16,731
1979										14,315
1980										19,665
1981										14,721
1982										18,518
1983										11,277
1984										9,727
1985										11,227
1986		2,125		8,364		10,489		3,929		14,418
1987		2,209		16,652		18,861		5,359		24,220
1988		1,473		9,932		11,405		6,221		17,626
1989		2,889		13,444		16,333		2,851		19,184
1990	10,039	7,487	21,392	16,631	31,431	24,118	8,403	5,643	39,834	29,761
1991	8,265	7,335	20,484	18,452	28,749	25,787	5,827	5,177	34,576	30,964
1992	5,830	5,263	19,199	15,976	25,029	21,239	7,823	6,665	32,852	27,904
1993	13,957	12,907	31,728	27,018	45,685	39,925	8,512	7,647	54,197	47,572
1994	6,872	6,377	23,510	21,248	30,382	27,625	11,337	10,840	41,719	38,465
1995	8,848	7,983	25,623	21,648	34,471	29,631	12,520	10,110	46,991	39,741
1996	22,844	18,282	39,044	34,908	61,888	53,190	16,622	14,131	78,510	67,321
1997	31,580	24,401	64,076	51,680	95,656	76,081	18,264	13,770	113,920	89,851

Source: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported catch and harvest does not include catch or harvest outside of Resurrection Bay between Gore Point and Cape Puget.

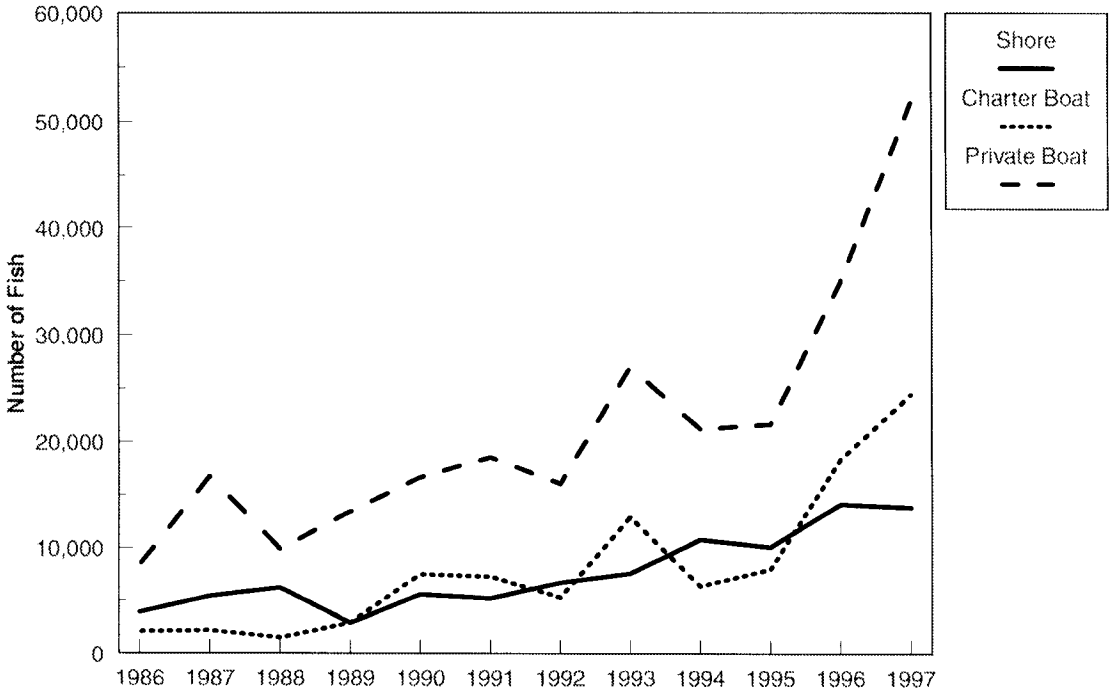

Figure 4.-Resurrection Bay saltwater coho salmon harvest by fishery, 1986-1997.

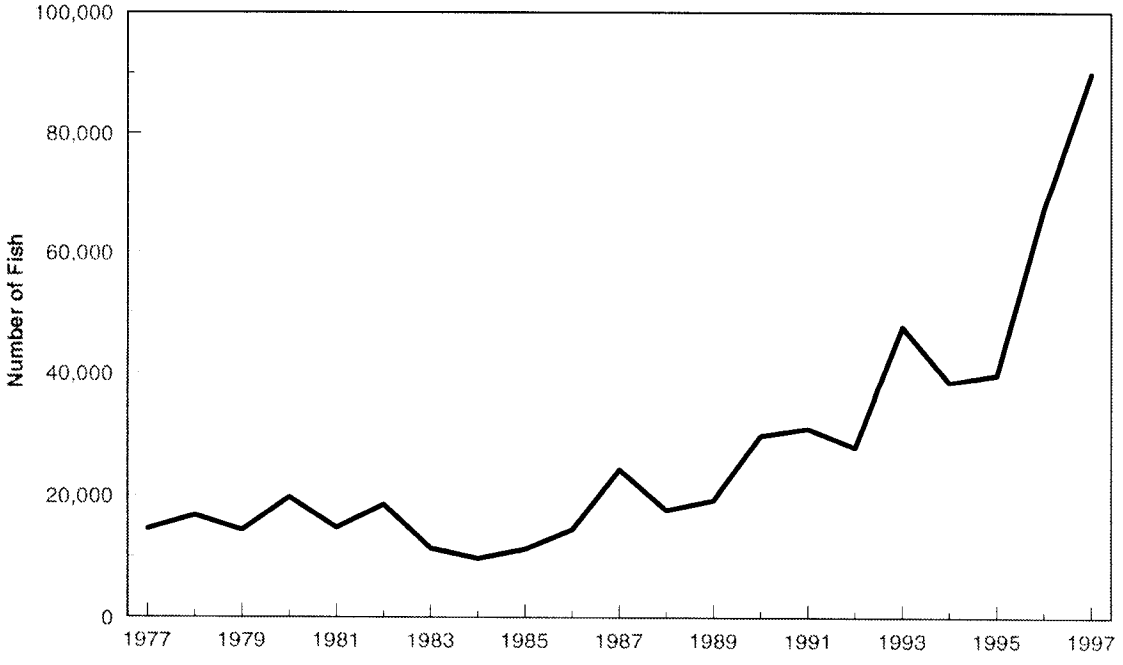

Figure 5.-Total Resurrection Bay saltwater coho salmon harvest, 1977-1997.

(2) that any commercial fishery developed as a result of this enhancement effort must be prosecuted with minimal conflict to the recreational fishery. With this change, in 1989 the Cook Inlet Aquaculture Association took over control of the Bear Lake weir and its operations, which had been operated by the Division of Sport Fish since the early 1960s.

Another component of the coho salmon enhancement in Resurrection Bay began in 1969 with annual plants of hatchery-reared smolt at a variety of local release sites. Although survival rates have varied between sites and years, smolt-to-adult survivals have been as high as 15%. The contribution of these fish to the sport fishery has also been significant, up to 51% (Vincent-Lang 1987; Vincent-Lang et al. 1988; Carlon and Vincent-Lang 1989, 1990). Hatchery release sites and number of fish stocked can be found in Table 3.

The current bag and possession limits for salmon other than chinook salmon in Resurrection Bay salt water are six fish per day and in possession. Snagging is legal in salt water. All freshwater drainages of Resurrection Bay have been closed to salmon sport fishing since before statehood.

Recent Fishery Performance

Estimates for Resurrection Bay angler effort (109,462) and coho salmon harvest (89,851) in 1997 were record highs (Table 4, Figure 5). Anglers fishing from private boats accounted for most of the coho salmon harvest (51,680, 58%). Shorebased anglers fishing along Seward beaches from the boat harbor to Lowell Point and across the bay at the mouth of Spring Creek accounted for 13,770 fish, or 15% of the harvest. Charter boat clients harvested the remaining 24,401 fish (27%; Table 5, Figure 4).

Management Objective

For coho salmon smolt releases, the management objectives are to: (1) produce, through supplemental hatchery production, an annual return of 40,000 coho salmon; and (2) generate 25,000 angler-days of fishing opportunity directed at stocked coho salmon for both boat and shorebased anglers.

While no formal escapement goals have been established for coho salmon returns in Resurrection Bay, CIAA allows a minimum of 300 coho salmon into Bear Lake. A weir on Bear Creek is used to collect coho salmon eggs for ADF&G and CIAA stocking activities.

No other specific fishery objectives have been formally established for Resurrection Bay coho salmon fisheries to date other than management objectives outlined in the Bear Lake and Resurrection Bay Management Plans.

Recent Board of Fisheries Actions

There were no regulatory changes to this fishery during the BOF 1992 or 1995/1996 cycle. The next meeting for this area is scheduled for November 1998.

Two proposals have been submitted for the November 1998 BOF meeting that would impact coho salmon sport fishing opportunities in Resurrection Bay if passed. The first, submitted by CIAA, would close a small area of salt water centered around the mouth of Spring Creek to all sport fishing from July 1 through August 7. CIAA has submitted project plans to stock sockeye salmon smolt into Spring Creek and use the returning adults for cost recovery. CIAA also proposed to release approximately 250,000 coho salmon smolt into Spring Creek primarily for sport anglers, although fish that escaped the sport fishery would be harvested for cost recovery. The Commissioner's office has denied the project permits citing pathological concerns. Therefore, CIAA should withdraw this proposal.

The Alaska Sealife Center submitted the second proposal. This proposal asks for a small saltwater closed area centered around their fish pass. While the department has the authority to invoke 5 AAC 75.050. Waters Closed to Sport Fishing. *(a) the waters within 300 feet of a fish weir or fish ladder are closed to sport fishing, unless a lesser distance is indicated by department markers*, the Alaska Sealife Center was urged to submit this proposal for BOF deliberation. The area in question is popular with shore and boat anglers, especially during the Seward Silver Salmon Derby. The department recognizes the need for a seasonal closure around the fish pass to ensure adequate returns of research fish, but does not agree that a year-round closure is necessary. The department recommends a seasonal closure that begins at the completion of the Seward Silver Salmon Derby and ends October 31.

Current Issues

The impact on Resurrection Bay sport fisheries by developing a commercial sockeye salmon fishery targeting stocks returning to Bear Lake appears to be minimal. This fishery occurs in late-May through June, well before coho salmon are present in Resurrection Bay. The commercial fishery is further restricted to weekdays to avoid any conflict with weekend anglers and the area near Seward is closed to commercial fishing. The Division of Commercial Fisheries staff responsible for management of this fishery have worked closely with Division of Sport Fish staff to minimize conflicts.

The stocking of Grouse Lake with "late-run" sockeye salmon has not impacted the coho salmon sport fishery as these fish are used for cost recovery. No saltwater commercial fishery occurs in July when these fish are present in Resurrection Bay.

Ongoing Research and Management Activities

There are no ongoing research projects. Management activities consist of attending public meetings, working with the local Fish and Game Advisory Committee, and observing the fishery during the Seward Silver Salmon Derby.

Recommended Research and Management Activities

A research project to estimate hatchery and natural contribution to the sport fishery has been discussed due to recent increases in harvest. A portion of all hatchery stocks, both in and outside Resurrection Bay, that may be available for sport harvest must be marked before meaningful results could be obtained.

Resurrection Bay Chinook Salmon Fishery

Resurrection Bay does not support any wild returns of chinook salmon. The sport fishery for chinook salmon in and near Resurrection Bay is supported primarily by hatchery-produced fish, with a limited harvest of wild feeder chinook salmon. Chinook salmon smolt were stocked in Box Canyon Creek, a tributary of Resurrection River, from 1976-1979 and 1983, in an attempt to create a new sport fishery (Table 3). These attempts failed to produce significant adult returns. Beginning in 1984, chinook salmon smolt have been released in marine waters adjacent to Lowell Creek. In 1985, Seward Lagoon was also stocked with early-run chinook smolt. These releases of "early-run" (May-June) fish have averaged approximately 225,000 smolt annually since 1988 (Table 3). Starting in 1991, chinook salmon smolt with late-run timing (August) have been stocked in Seward Lagoon. These releases were intended to diversify and extend fishing opportunities in Resurrection Bay.

The marine waters of Resurrection Bay are open to the taking of chinook salmon throughout the year. The bag and possession limits for chinook salmon in Resurrection Bay salt water are two

fish per day and in possession with no size restrictions. Snagging is legal in salt water. All freshwater drainages of Resurrection Bay have been closed to salmon sport fishing since before statehood.

From 1987-1996, the average harvest of chinook salmon from marine waters of Resurrection Bay has been about 2,300 fish (Table 4). Most chinook are harvested by shorebased anglers (Table 6, Figure 6).

Recent Fishery Performance

The sport harvest of chinook salmon in Resurrection Bay during 1997 (5,761; Figure 7) was over double the 1987-1996 average (Table 4). Shore anglers, concentrated near release sites at Lowell Creek and the Seward Lagoon outfall, accounted for 59% of the total harvest (Table 6, Figure 6) with snagging being the preferred method. Anglers trolling in private boats accounted for 32% of the total harvest while anglers employing charter boats took 9%. A small but growing number of boat anglers are targeting these hatchery-produced fish in May. Observations of the chinook salmon fishery indicate that most of the early-run harvest is taken by shore anglers while most of the late run is harvested by boat anglers targeting silver salmon.

Management Objective

The Resurrection Bay Salmon Management Plan allocates chinook salmon to the sport fishery.

For hatchery-produced chinook salmon, the management objectives are to: (1) produce, through hatchery production, an annual return of 6,000 early-run and 3,000 late-run chinook salmon; and (2) generate 10,000 angler-days of chinook salmon fishing opportunity annually for both boat and shorebased anglers.

Recent Board of Fisheries Actions

There were no BOF actions specific to this fishery in 1992 or 1995/96. The Alaska Sealife Center proposal discussed in the Coho Salmon section of this report may impact a small number of anglers targeting chinook salmon if it is passed as written.

Current Issues

There has been some public discussion in Seward in regard to the "snag" fishery that has developed targeting these hatchery fish. A small but growing portion of the public would like to see regulations similar to those in effect for the Homer Spit Lagoon enacted for Seward area beaches, i.e. only allow snagging by emergency order after fish "go off the bite." To date, no BOF proposal has been generated. Beginning in 1997, the SWHS has estimated catch and harvest of early- and late-run chinook salmon in Resurrection Bay. In the past, there was no separation of the two distinct runs in the SWHS. This information will be useful to evaluate stocking levels.

Ongoing Research and Management Activities

There are no ongoing research projects. Management activities consist of attending public meetings, working with the local Fish and Game Advisory Committee, and observing the fishery in mid-June and again during the Seward Silver Salmon Derby.

Recommended Research and Management Activities

No new research or management activities are recommended.

Table 6.-Resurrection Bay saltwater sport catch (1990-1997) and harvest (1977-1997) of chinook salmon.

	Boat									
	Charter		Private		Total		Shore		Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1977										515
1978										501
1979										156
1980										198
1981										162
1982										345
1983										199
1984										24
1985										187
1986		13		97		110		97		207
1987		217		127		344		289		633
1988		236		655		891		1,165		2,056
1989		147		371		518		458		976
1990	84	62	890	532	974	594	1,290	410	2,264	1,004
1991	437	358	452	420	889	778	888	769	1,777	1,547
1992	388	329	1,584	1,219	1,972	1,548	1,669	1,377	3,641	2,925
1993	976	674	1,655	1,292	2,631	1,966	3,834	3,155	6,465	5,121
1994	632	348	691	434	1,323	782	2,092	1,296	3,415	2,078
1995	895	599	1,216	890	2,111	1,489	3,139	2,379	5,250	3,868
1996	578	490	897	770	1,475	1,260	2,662	2,173	4,137	3,433
1997	990	507	3,001	1,829	3,991	2,336	4,360	3,425	8,351	5,761

Source: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported catch and harvest does not include catch or harvest outside of Resurrection Bay between Gore Point and Cape Puget.

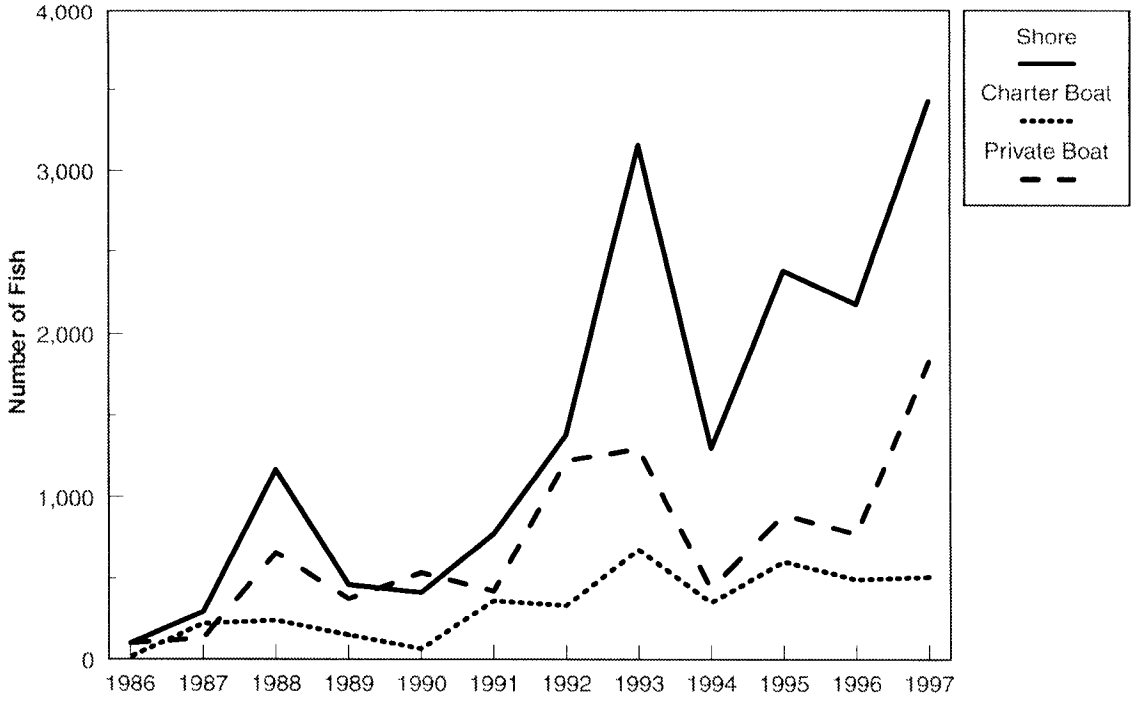

Figure 6.-Resurrection Bay saltwater chinook salmon harvest by fishery, 1986-1997.

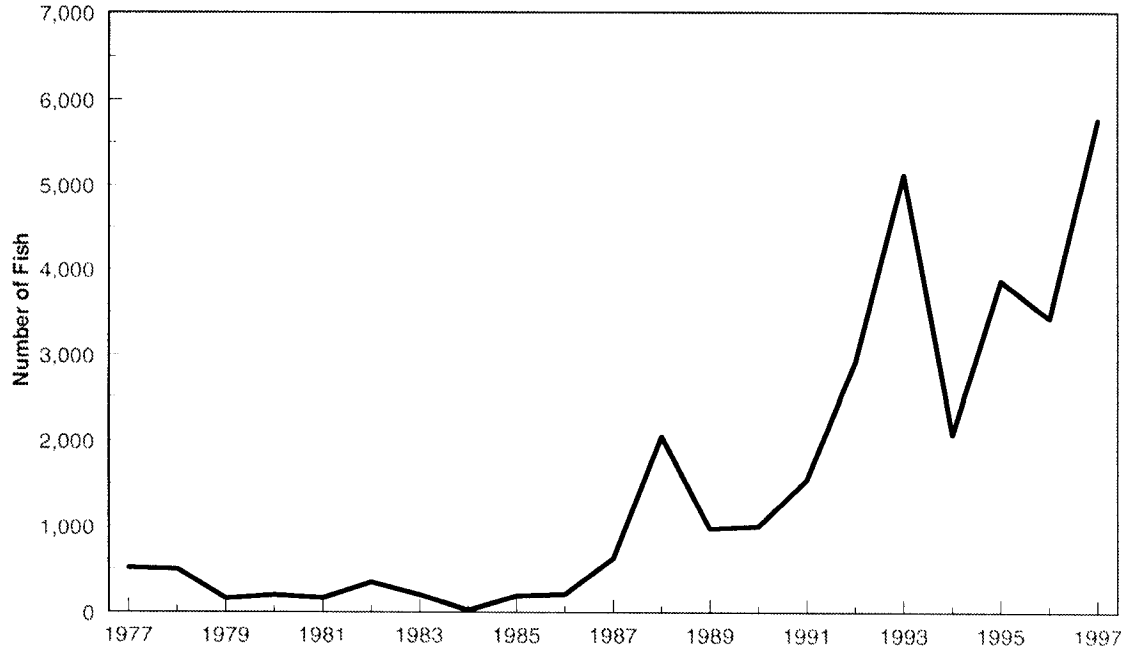

Figure 7.-Total Resurrection Bay saltwater chinook salmon harvest, 1977-1997.

Resurrection Bay Pink Salmon Fishery

Wild stocks that spawn in most Resurrection Bay streams support the pink salmon fishery. Pink salmon return to Resurrection Bay from late-July through mid-September with the peak of the return occurring in mid-late August. Pink salmon returns are largest during even years.

The sport fishing season is open all year and the bag and possession limit is six salmon per day other than chinook, and six in possession. Snagging is legal in salt water. All freshwater drainages of Resurrection Bay have been closed to salmon sport fishing since before statehood.

The 1987-1996 average pink salmon harvest in Resurrection Bay was 4,449 fish, down from the 1977-1986 average of 7,271 fish (Table 4). Shore and private boat anglers (Table 7, Figure 8) harvested most fish.

Recent Fishery Performance

The sport harvest of pink salmon from Resurrection Bay in 1997 was estimated at 1,654 fish, the lowest odd-year harvest since 1977 (Table 7, Figure 9). Private boat anglers harvested the largest proportion of the total harvest, followed by shoreline anglers and charter boat anglers (Table 7, Figure 8). Most pink salmon observed caught by sport anglers are released. It is not known whether the decrease in angler harvest is due to declining pink salmon runs or increased abundance of more desirable coho salmon runs.

Management Objective

No specific fishery objectives have been formally established for Resurrection Bay pink salmon sport fisheries. However, the Resurrection Bay Salmon Management Plan allocates surplus pink salmon to the commercial fleet.

Recent Board of Fisheries Actions

There were no BOF actions specific to this fishery in 1992 or 1995/96. The Alaska Sealife Center proposal discussed in the Coho Salmon section of this report may impact anglers targeting pink salmon if it is passed as written.

Current Issues

There are no major issues surrounding the Resurrection Bay pink salmon sport fishery.

Ongoing Research and Management Activities

The Division of Sport Fish does not conduct any research on pink salmon stocks in Resurrection Bay. Management activities consist of attending public meetings, and working with the local Fish and Game Advisory Committee. The Division of Commercial Fisheries conducts aerial escapement surveys of pink salmon in the lower Cook Inlet area including Resurrection Bay. The Alaska Sealife Center will be conducting research on pink salmon. Groups of experimental fish will be marked and released as juveniles.

Recommended Research and Management Activities

No new research or management activities are recommended.

Table 7.-Resurrection Bay saltwater sport catch (1990-1997) and harvest (1977-1997) of pink salmon.

	Boat									
	Charter		Private		Total		Shore		Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1977										1,595
1978										6,610
1979										2,100
1980										12,614
1981										7,776
1982										9,328
1983										4,909
1984										11,510
1985										5,262
1986		2,538		1,911		4,449		6,559		11,008
1987		1,503		471		1,974		1,394		3,368
1988		346		1,255		1,601		400		2,001
1989		557		990		1,547		3,309		4,856
1990	2,346	1,027	7,224	3,086	9,570	4,113	5,326	2,080	14,896	6,193
1991	1,873	1,157	3,833	1,569	5,706	2,726	2,996	1,988	8,702	4,714
1992	1,328	897	4,067	1,548	5,395	2,445	4,616	1,832	10,011	4,277
1993	1,284	866	5,946	1,822	7,230	2,688	3,978	1,484	11,208	4,172
1994	1,435	657	4,320	1,500	5,755	2,157	5,782	3,416	11,537	5,573
1995	1,259	835	6,101	2,186	7,360	3,021	5,062	1,711	12,422	4,732
1996	1,735	615	3,608	1,235	5,343	1,850	5,665	2,757	11,008	4,607
1997	934	276	2,736	758	3,670	1,034	1,911	620	5,581	1,654

Source: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported catch and harvest does not include catch or harvest outside of Resurrection Bay between Gore Point and Cape Puget.

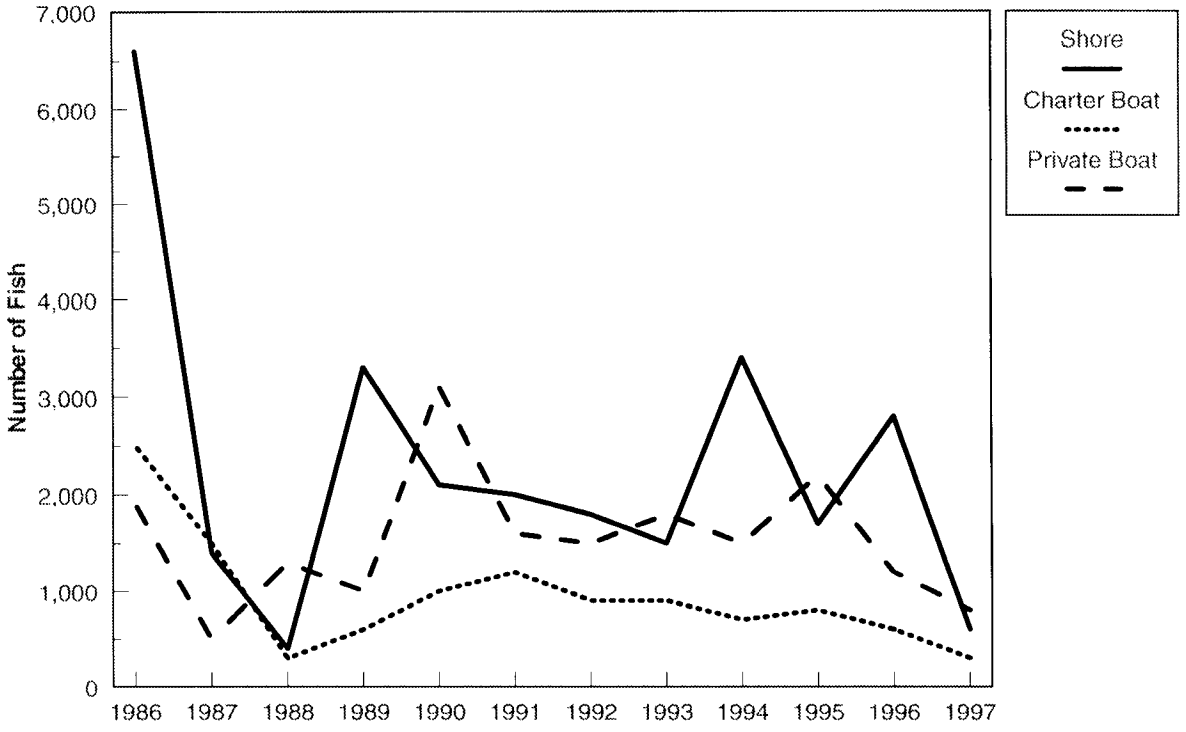

Figure 8.-Resurrection Bay saltwater pink salmon harvest by fishery, 1986-1997.

Figure 9.-Total Resurrection Bay saltwater pink salmon harvest, 1977-1997.

Resurrection Bay Sockeye Salmon Fishery

Sockeye salmon return to Resurrection Bay streams, primarily Bear Lake and its tributaries, from late-May through July. Spawning occurs in mid-July through September.

Resurrection Bay has historically been managed primarily for the recreational coho salmon fishery. The sport harvest of sockeye salmon has been incidental. In 1966, the BOF developed the Resurrection Bay Salmon Management Plan (5 AAC 21.376), which allocated the bay's coho salmon to the sport fishery. In 1976 the BOF modified the plan to stipulate that commercial fisheries for pink and chum salmon be managed so that they did not interfere with the recreational coho and chinook salmon sport fishery. After a successful coho salmon enhancement program was established in Bear Lake, the BOF adopted the Bear Lake Management Plan (5 AAC 21.375) in 1971. This plan stated that Bear Lake be managed primarily for the production of coho salmon and, in accordance with this objective, placed restrictions on the number of sockeye salmon entering Bear Lake.

Bear Lake is considered the only viable candidate for sockeye salmon enhancement in Resurrection Bay. In 1988, the BOF substantially modified the Bear Lake Management Plan. This plan rescinded restrictions on the Bear Lake sockeye salmon escapement. The sockeye salmon dip net fisheries in Bear Creek were no longer permitted. The plan directed the department to establish a sockeye salmon escapement goal for Bear Lake and stipulated that if enhancement of sockeye salmon occurs, the early run timing of the native stock is to be maintained. The Board specified that sockeye salmon enhancement should not cause a net loss of coho smolt production from Bear Lake. Should enhancement of sockeye salmon create a viable commercial fishery, it was the Board's intent that this fishery be conducted "with minimal conflict with the sport fishery." This plan was a major departure from previous policy in that Bear Lake is now managed for both coho and sockeye salmon production.

In the spring of 1990, 20,000 sockeye salmon fry and 2,400,000 early-run sockeye salmon smolt were released into Bear Lake (Table 3). These smolt contributed to the first sockeye salmon returns in 1992, and are targeted by a commercial seine fishery conducted from late-May through June in Resurrection Bay. The first significant return from the 1990 fry release occurred in 1994 when fish returned as 2-ocean adults. In 1994, about 540,000 "late-run" sockeye salmon smolt were released into Grouse Lake. Returning adults to Grouse Lake are not available to commercial fishers in Resurrection Bay. CIAA harvests the returning adults in Grouse Creek for cost recovery.

The saltwater sport fishing season is open all year and the bag and possession limit is six salmon other than chinook per day and in possession. Snagging is legal in salt water. All freshwater drainages of Resurrection Bay have been closed to salmon sport fishing since before statehood.

From 1987-1996, the average harvest of sockeye salmon from Resurrection Bay was 991 fish (Table 4). In most years estimates are available, shore anglers account for the largest proportion of harvest (Table 8, Figure 10).

Recent Fishery Performance

The sport harvest of sockeye salmon from Resurrection Bay in 1997 (2,081) was double the recent 10-year average and the highest harvest on record (Tables 4 and 8, Figure 11). Shore anglers took most (1,419) of the harvested fish followed by private boat anglers (573). Observations of the chinook salmon fishery indicate most sockeye salmon caught by sport

Table 8.-Resurrection Bay saltwater sport catch (1990-1997) and harvest (1977-1997) of sockeye salmon.

	Boat									
	Charter		Private		Total		Shore		Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1977										6
1978										0
1979										0
1980										0
1981										0
1982										0
1983										0
1984										1,305
1985										1,335
1986		31		92		123		214		337
1987		91		217		308		507		815
1988		18		236		254		164		418
1989		128		99		227		397		624
1990	273	68	408	272	681	340	185	78	866	418
1991	320	256	216	208	536	464	692	519	1,228	983
1992	99	58	666	551	765	609	699	526	1,464	1,135
1993	318	206	1,375	1,147	1,693	1,353	666	512	2,359	1,865
1994	408	408	574	306	982	714	748	701	1,730	1,415
1995	209	198	407	284	616	482	833	812	1,449	1,294
1996	444	198	640	413	1,084	611	466	336	1,550	947
1997	89	89	739	573	828	662	1,687	1,419	2,515	2,081

Source: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported catch and harvest does not include catch or harvest outside of Resurrection Bay between Gore Point and Cape Puget.

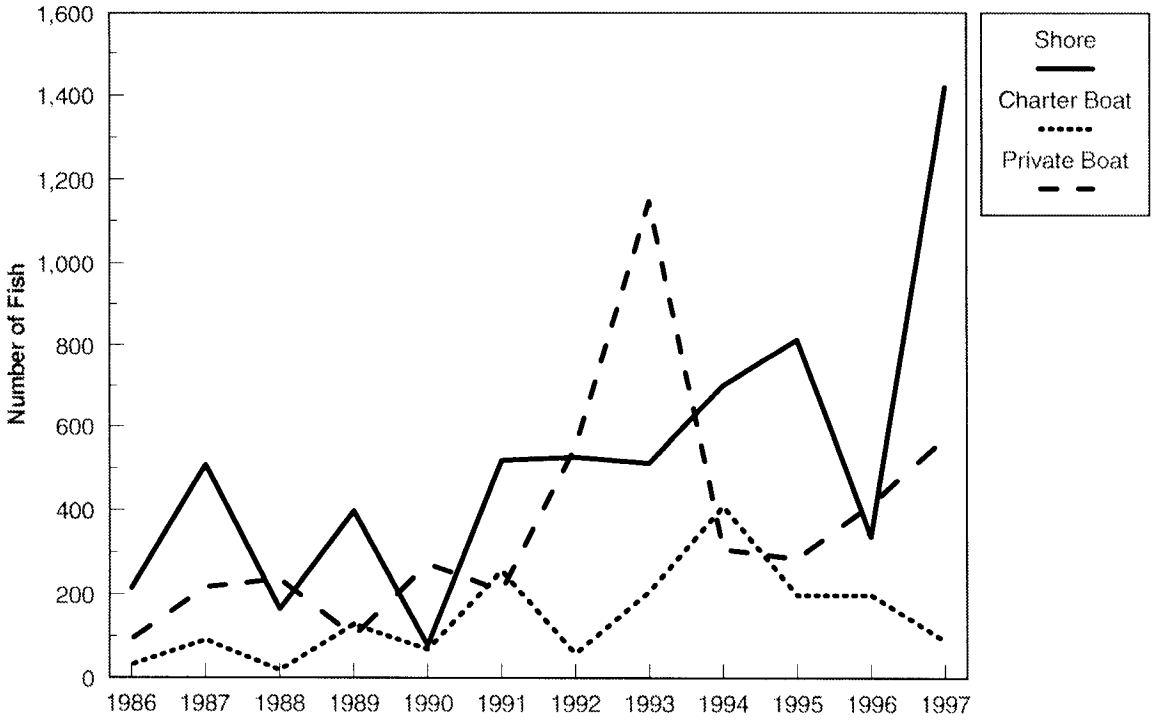

Figure 10.-Resurrection Bay saltwater sockeye salmon harvest by fishery, 1986-1997.

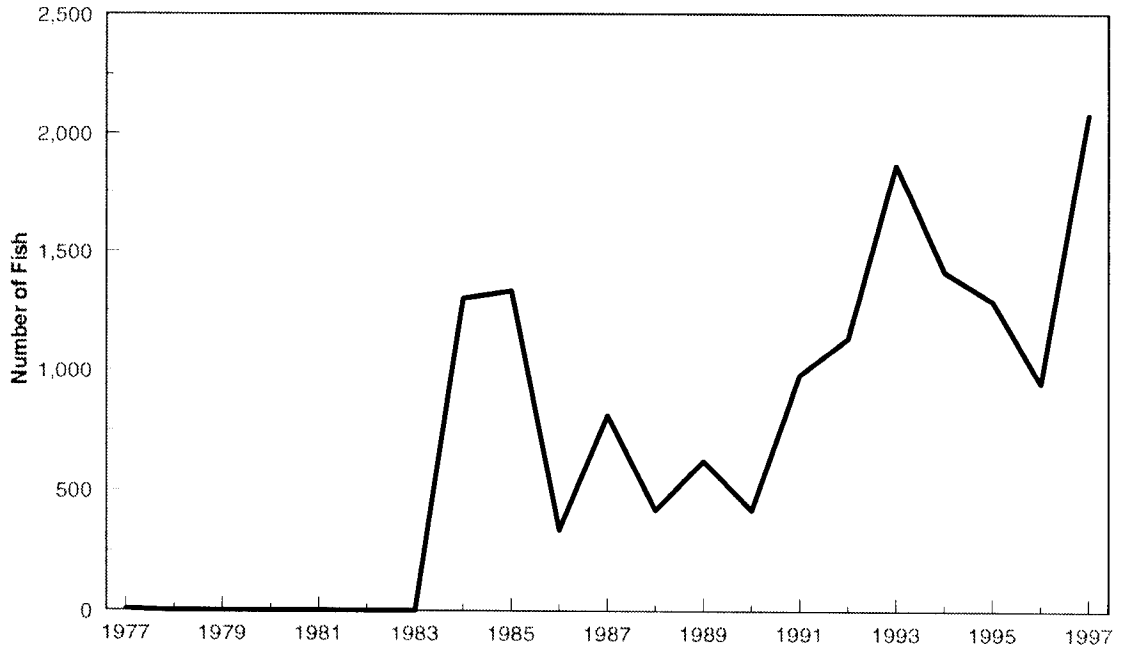

Figure 11.-Total Resurrection Bay saltwater sockeye salmon harvest, 1977-1997.

anglers were incidental. Sockeye salmon, unlike pink salmon, were not released if caught incidental to targeted species.

Management Objective
The department has established a biological escapement goal of 1,000 sockeye salmon for Bear Lake. CIAA's annual management plan, approved by the department, specifies that a minimum of 5,000 and maximum of 8,000 sockeye salmon are passed into Bear Lake. No other specific fishery objectives have been formally established for Resurrection Bay sockeye salmon fisheries to date other than management objectives outlined in the Bear Lake and Resurrection Bay Management Plans.

Recent Board of Fisheries Actions
There were no BOF actions specific to this sport fishery taken during its 1992 or 1995/96 meetings.

A proposal submitted by CIAA for the November 1998 BOF meeting requests the closure of a small area of salt water centered around the mouth of Spring Creek to all sport fishing from July 1 through August 7. CIAA has submitted project plans to stock sockeye salmon smolt into Spring Creek and utilize returning adults for cost recovery. CIAA also proposed to release approximately 250,000 coho salmon smolt into Spring Creek primarily for sport anglers, although fish that escape the sport fishery would be harvested for cost recovery. The ADF&G Commissioner has denied the project permits citing pathological concerns. Therefore, CIAA should withdraw this proposal.

Current Issues
The impact on Resurrection Bay sport fisheries by developing a commercial sockeye salmon fishery targeting stocks returning to Bear Lake appears to be minimal. This commercial fishery occurs in late-May through June, well before coho salmon are present in Resurrection Bay. The commercial fishery is further restricted to weekdays to avoid any conflict with weekend anglers and restricted away from Seward beaches to avoid conflicts with chinook salmon anglers. The Division of Commercial Fisheries staff responsible for management of this fishery have worked closely with Division of Sport Fish staff to minimize conflicts.

The stocking of Grouse Lake with "late-run" sockeye salmon has not impacted the coho salmon sport fishery as these fish are used for cost recovery. No saltwater commercial fishery occurs in July when these fish are present in Resurrection Bay. Moving Grouse Lake stocking to Spring Creek as CIAA has proposed will impact an existing sport fishery. However, the ADF&G Commissioner has denied this request.

There has been some public discussion about having a dip net fishery for sockeye salmon and/or a freshwater sport fishery targeting these hatchery sockeye salmon. To date, no BOF proposal has been submitted.

Ongoing Research and Management Activities
There are no ongoing research projects. Management activities consist of attending public meetings, Cook Inlet Regional Planning Team meetings, and working with the local Fish and Game Advisory Committee.

Recommended Research and Management Activities
There are no recommended management or research projects at this time.

Resurrection Bay Chum Salmon Fishery

Wild stocks that spawn in most Resurrection Bay streams support the chum salmon fishery. Chum salmon return to Resurrection Bay from mid-July through late August with the peak of the return occurring in early August. Chum salmon fingerlings were stocked into two Resurrection Bay streams, Jap and Spring creeks, in 1985 (Table 3).

The sport fishing season is open all year and the bag and possession limit is six salmon other than chinook per day and six in possession. Snagging is legal in salt water. All freshwater drainages of Resurrection Bay have been closed to salmon sport fishing since before statehood.

The 1987-1996 average chum salmon harvest in Resurrection Bay was 1,327 fish, almost double the 1977-1986 average of 721 fish (Table 4). Shore anglers (Table 9, Figure 12) harvested most fish.

Recent Fishery Performance

The sport harvest of chum salmon from Resurrection Bay in 1997 was estimated to be 644 fish (Table 9, Figure 13). Shore anglers and charter boat anglers harvested most of the chum salmon (228 each, Table 9, Figure 12). Most chum salmon harvested by boat anglers are taken incidentally to other species, while shore anglers target chum salmon at the mouths of Spring and Tonsina creeks.

Management Objective

No specific fishery objectives have been formally established for Resurrection Bay chum salmon sport fisheries. However, the Resurrection Bay Salmon Management Plan allocates surplus chum salmon to the commercial fleet.

Recent Board of Fisheries Actions

There were no BOF actions specific to this fishery in 1992 or 1995/96. The Alaska Sealife Center proposal discussed in the Coho Salmon section may impact anglers targeting chum salmon if it is passed as written.

Current Issues

There are no major issues surrounding the Resurrection Bay chum salmon sport fishery.

Ongoing Research and Management Activities

The Division of Sport Fish does not conduct any research on chum salmon stocks in Resurrection Bay. Management activities consist of attending public meetings, and working with the local Fish and Game Advisory Committee. The Division of Commercial Fisheries conducts aerial and/or foot escapement surveys of chum salmon in the lower Cook Inlet area including Resurrection Bay. The Alaska Sealife Center will be conducting research on chum salmon. Groups of experimental fish will be marked and released as juveniles.

Recommended Research and Management Activities

No new research or management activities are recommended.

Table 9.-Resurrection Bay saltwater sport catch (1990-1997) and harvest (1977-1997) of chum salmon.

	Boat									
	Charter		Private		Total		Shore		Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1977										63
1978										39
1979										100
1980										276
1981										194
1982										458
1983										923
1984										2,569
1985										634
1986		275		199		474		1,484		1,958
1987		163		362		525		1,449		1,974
1988		819		1,091		1,910		2,037		3,947
1989		222		207		429		1,267		1,696
1990	296	148	268	56	564	204	480	223	1,044	427
1991	415	294	106	106	521	400	471	357	992	757
1992	501	243	2,338	463	2,839	706	1,374	615	4,213	1,321
1993	267	79	294	117	561	196	1,913	484	2,474	680
1994	87	58	251	131	338	189	926	499	1,264	688
1995	287	92	257	120	544	212	1,294	184	1,838	396
1996	313	179	905	162	1,218	341	2,892	1,046	4,110	1,387
1997	240	228	828	188	1,068	416	1,790	228	2,858	644

Source: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported catch and harvest does not include catch or harvest outside of Resurrection Bay between Gore Point and Cape Puget.

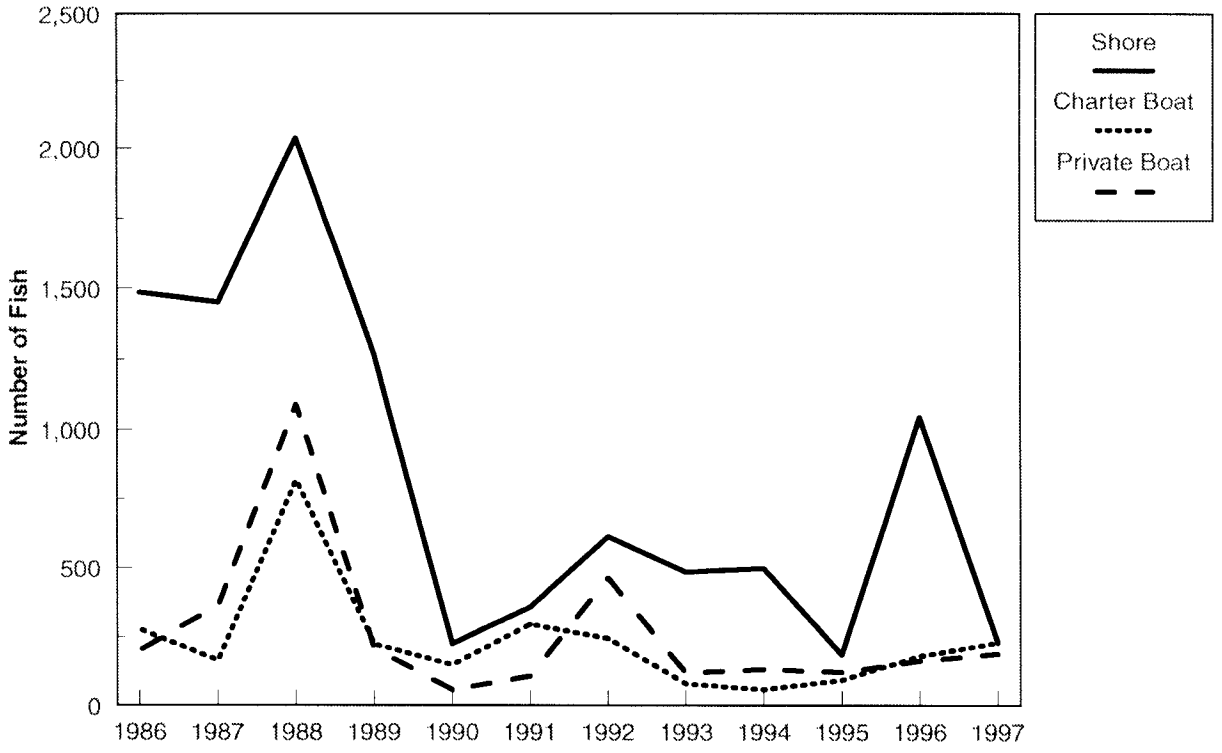

Figure 12.-Resurrection Bay saltwater chum salmon harvest by fishery, 1986-1997.

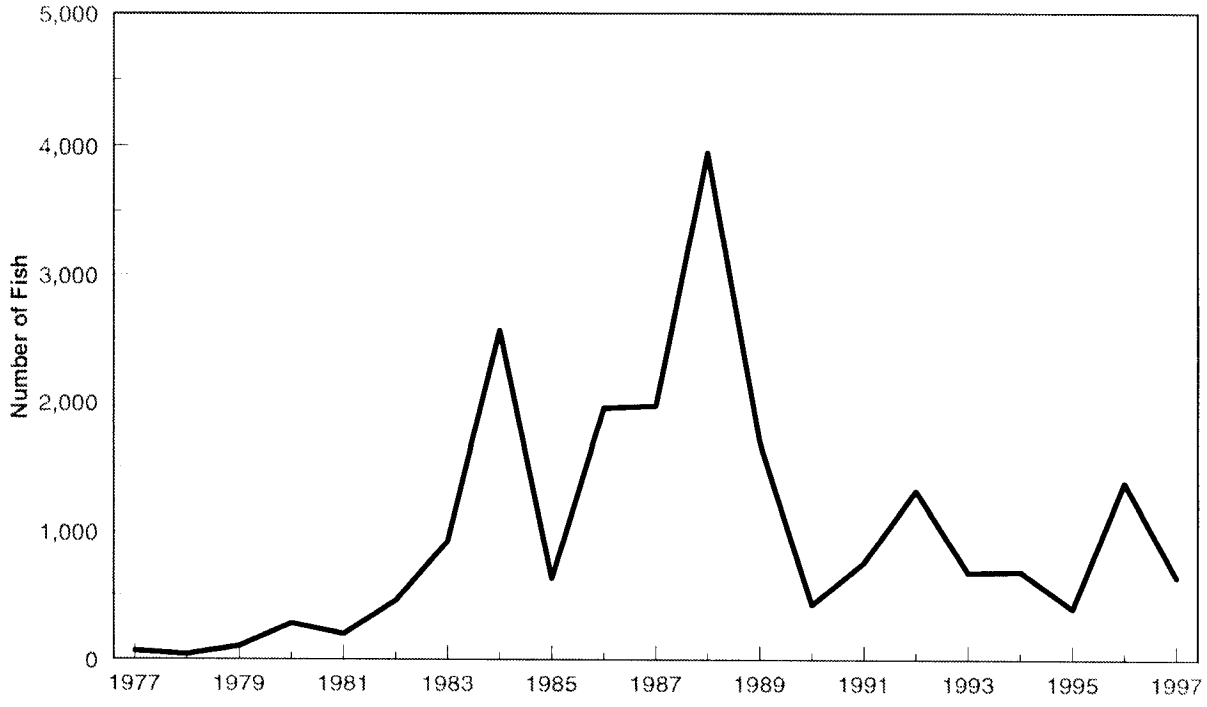

Figure 13.-Total Resurrection Bay saltwater chum salmon harvest, 1977-1997.

Resurrection Bay Dolly Varden Fishery

Dolly Varden are available to Resurrection Bay saltwater anglers in May as fish migrate out to sea and again in late August through September as fish return to freshwater overwintering areas.

All Resurrection Bay waters (fresh and salt) are open year-round to fishing for Dolly Varden, except Seward Lagoon, which is closed to all sport fishing. Daily bag and possession limits are five in salt water and two in fresh water with no size restrictions. Snagging is legal in salt water but illegal in fresh water.

The average saltwater harvest from 1987-1996 was 570 fish (Table 4), which was substantially lower than the 1977-1986 average harvest of 2,056 fish. Most of the harvest from 1994 to present has been taken by shorebased anglers (Table 10, Figure 14).

Recent Fishery Performance

The Dolly Varden harvest in 1997 was estimated to be 275 fish (Table 10, Figure 15), most of which were taken from shore. Few anglers are observed targeting Dolly Varden in marine waters during the time period that they are present. Anglers fishing in May now target hatchery chinook salmon and anglers fishing in August through September are targeting coho salmon.

Management Objective

No specific fishery objectives have been formally established for Resurrection Bay marine Dolly Varden fisheries.

Recent Board of Fisheries Actions

During the 1995/96 meeting cycle, the BOF passed a proposal which reduced Dolly Varden bag and possession limits in fresh water from five to two. No proposals specific to Resurrection Bay Dolly Varden were submitted for BOF deliberation during the November 1998 meeting.

Current Issues

It is not known whether the decline in Resurrection Bay saltwater Dolly Varden harvests is a result of declining stock size or a function of anglers targeting more desirable and abundant salmon species.

Ongoing Research and Management Activities

The Division of Sport Fish does not conduct any research on Dolly Varden stocks in Resurrection Bay. Management activities consist of attending public meetings and working with the local Fish and Game Advisory Committee.

Recommended Research and Management Activities

Staff should explore the feasibility of Dolly Varden stock assessment work in Resurrection Bay freshwater tributaries.

Table 10.-Resurrection Bay saltwater sport catch (1990-1997) and harvest (1977-1997) of Dolly Varden.

	Boat									
	Charter		Private		Total		Shore		Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1977										1,720
1978										1,248
1979										973
1980										878
1981										5,335
1982										1,562
1983										5,811
1984										1,771
1985										191
1986		260		245		505		566		1,071
1987		109		344		453		362		815
1988		36		437		473		255		728
1989		75		618		693		300		993
1990	115	94	246	21	361	115	226	113	587	228
1991	97	97	311	220	408	317	336	207	744	524
1992	24	24	262	164	286	188	344	188	630	376
1993	370	321	770	328	1,140	649	238	125	1,378	774
1994	66	47	271	27	337	74	718	209	1,055	283
1995	43	33	171	138	214	171	699	438	913	609
1996	210	40	132	122	342	162	519	208	861	370
1997	235	56	472	58	707	114	296	161	1,003	275

Source: Mills 1979-1994, Howe et al. 1995-1998.

Note: Reported catch and harvest does not include catch or harvest outside of Resurrection Bay between Gore Point and Cape Puget.

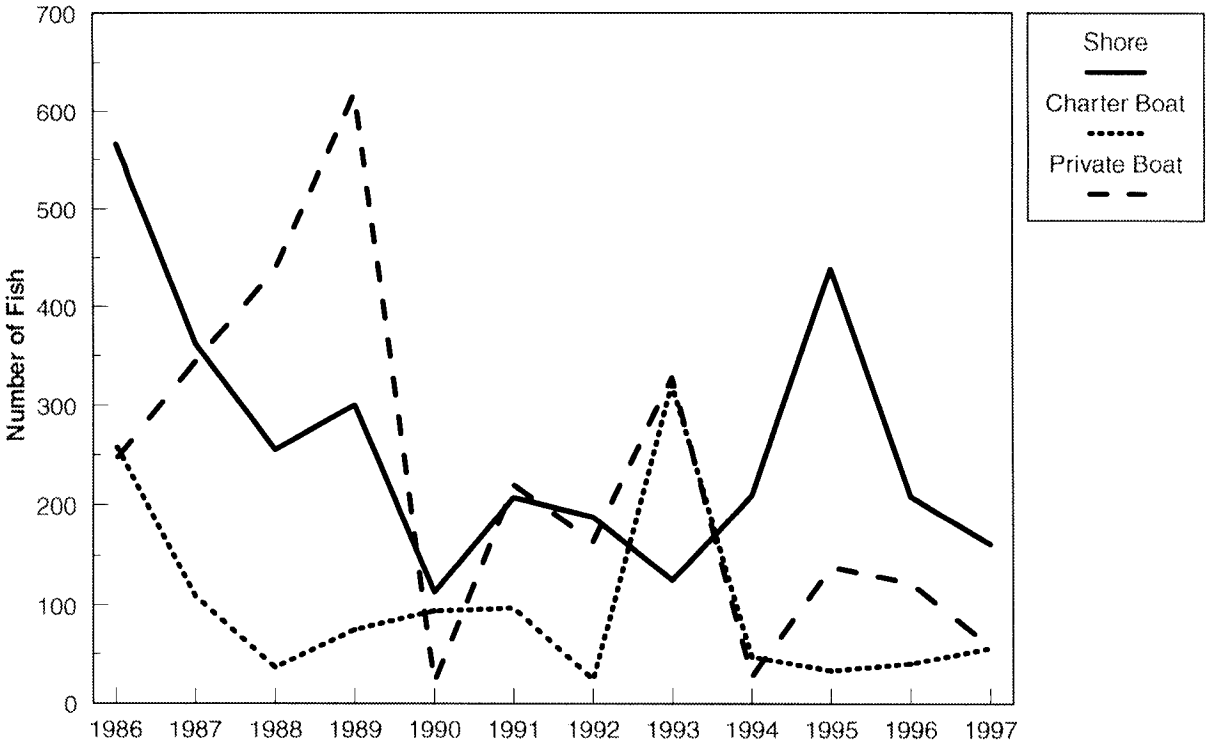

Figure 14.-Resurrection Bay saltwater Dolly Varden harvest by fishery, 1986-1997.

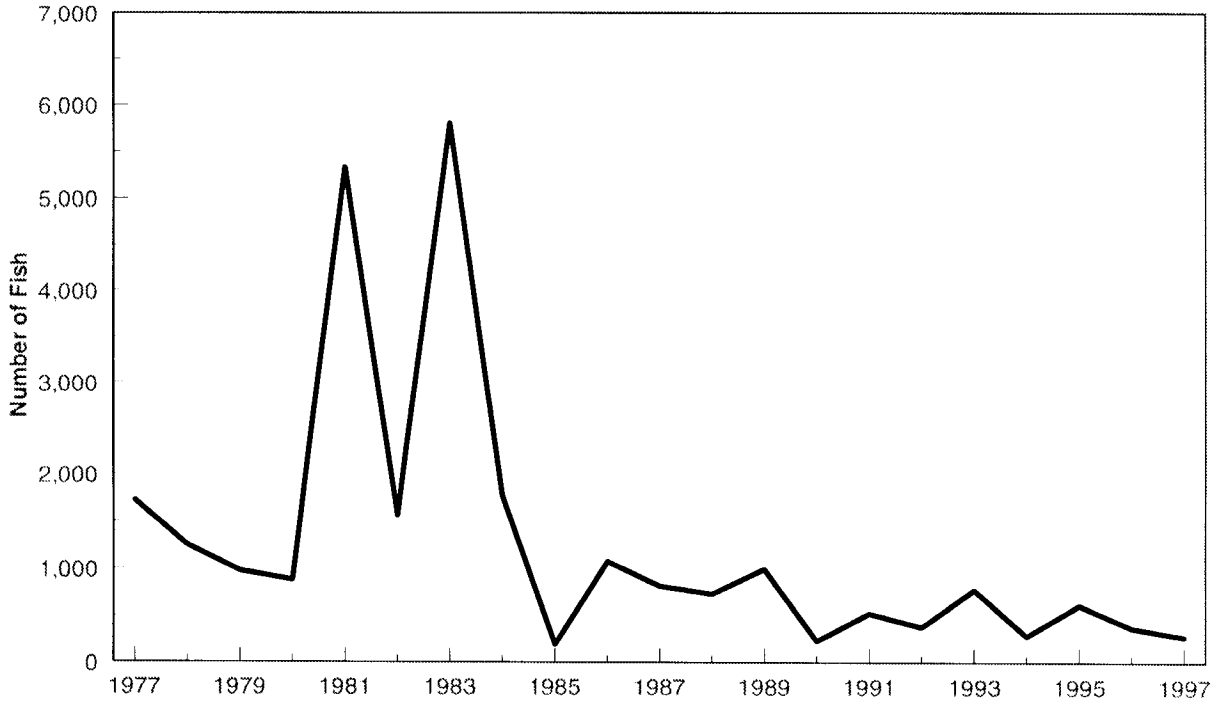

Figure 15.-Total Resurrection Bay saltwater Dolly Varden harvest, 1977-1997.

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APPENDIX A. RESURRECTION BAY MANAGEMENT PLANS

Appendix A1.-Resurrection Bay Management Plans.

5 AAC 21.375. BEAR LAKE MANAGEMENT PLAN.

(a) Any restrictions, in board policies dated before the effective date of this section, on the maximum number of indigenous Bear Lake sockeye salmon spawners are rescinded. The department shall establish an escapement goal for Bear Lake sockeye salmon stocks and shall manage all contributing fisheries to meet this goal.

(b) Enhancement activities related to either indigenous Bear Lake sockeye salmon stocks or transplanted sockeye salmon stocks must consider the impact on continuing enhancement of Bear Lake coho salmon. It is the intent of the Board of Fisheries that

(1) any enhancement of sockeye salmon must not cause a net loss of coho salmon smolt production from Bear Lake;

(2) any enhancement of sockeye salmon in Bear Lake must maintain the early run timing of the indigenous stocks;

(3) the prime objective of any Bear Lake sockeye salmon enhancement must be to provide the opportunity for a commercially viable sockeye salmon fishery prosecuted with minimal conflict with the recreational fishery.

History - Eff. 6/10/89, Register 110 Authority - AS 16.05.060, AS 16.05.251

5 AAC 21.376. RESURRECTION BAY SALMON MANAGEMENT PLAN.

(a) Since the beginning of significant commercial harvests of pink and chum salmon in Resurrection Bay, there have been some conflicts between recreational and commercial fishermen. The issues are the protection of coho and chinook salmon for the recreational fishery, and the management of surplus pink and chum salmon stocks in a manner that provides for a commercial fishery while minimizing the incidental catch of coho and chinook salmon.

(b) The department shall, by emergency order,

(1) manage Resurrection Bay coho and chinook salmon stocks exclusively for recreational use;

(2) manage the indigenous pink and chum salmon stocks primarily for commercial use, insofar as that harvest does not interfere in time or area with the recreational fishery;

(3) manage the commercial fishery in Resurrection Bay in a manner that does not interfere with the recreational fishery.

History - Eff. 6/10/89, Register 110 Authority - AS 16.05.060, AS 16.05.251